

Permanent Aviation Fuel Facility (EP-262/2007/B)

Sixth Quarterly Environmental Monitoring and Audit Report – April 2008 to June 2008

11th Jul 2008

Environmental Resources Management

21/F Lincoln House
Taikoo Place, 979 King's Road
Island East, Hong Kong
Telephone 2271 3000
Facsimile 2723 5660

www.erm.com




**Permanent Aviation Fuel Facility (EP-262/2007/A)
Sixth Quarterly Environmental Monitoring and Audit Report
April 2008 to June 2008**

11th July 2008

Prepared by: Karen Lui/Craig A Reid

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For and on behalf of Environmental Resources Management	
Approved by:	Craig A Reid
Signed:	
Position:	Environmental Team Leader
Date:	11 th July 2008

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Permanent Aviation Fuel Facility for Hong Kong International Airport

**Environmental Certification Sheet
EP-262/2007/B**

Reference Document/Plan


Document/Plan to be Certified/ Verified:	Sixth Quarterly EM&A Report April 2008 to June 2008
Date of Report:	11 th July 2008
Date received by ET:	11 th July 2008
Date received by IEC:	11 th July 2008

Reference EM&A Manual Recommendation

EM&A Manual Recommendation:	Sections 13.5 and 13.5.3
Content:	EM&A Reports
13.5 A maximum of 4 copies of each EM&A Report shall be submitted	
13.5.3 The ET Leader will submit Quarterly EM&A Summary Reports for the construction phase EM&A works only.	

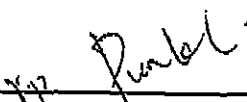
ET Certification

I hereby certify that the above referenced document/plan complies with the above referenced sections of the EM&A Manual recommendation

Craig A Reid, Environmental Team Leader:  Date: 11th July 2008

IEC Verification

I hereby verify that the above referenced document/plan complies with the above referenced sections of the EM&A Manual recommendation

Dr Guiyi Li, Independent Environmental Checker:  Date: 17/7/2008

Notes: EP-262/2007/B has replaced the former EP-262/2007/A, EP-262/2007 and EP-139-2002/A for the PAFF project after the resubmission of revised EM&A Manual and revised EIA Report respectively.

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EXECUTIVE SUMMARY

The construction works for the Permanent Aviation Fuel Facility resumed on 9th July 2007. This **sixth** quarterly Environmental Monitoring and Audit (EM&A) report presents the EM&A work carried out during the period from **1st April to 30th June 2008** in accordance with the EM&A Manual.

Breaches of all Action and Limit Levels

No water quality monitoring was conducted (due to no dredging work) during the reporting period that required comparison against Action and Limit Levels.

Complaint Log

No environmental complaint was received during the reporting period.

Notifications of any Summons and Successful Prosecutions

No environmental summon or prosecutions was received in this reporting period.

Reporting Changes

There were no reporting changes in the reporting period.

Future Key Issues

- It should be noted that dredging activities have been suspended from 1st April onwards and are tentatively scheduled to resume in September 2008; and,
- Dust release and suppression.

Leighton Contractors (Asia) Limited (LCAL) has appointed ERM-Hong Kong, Limited (ERM) as the Environmental Team (ET) to implement the Environmental Monitoring and Audit (EM&A) programme for the Permanent Aviation Fuel Facility (the Project) during construction works.

The construction works for PAFF commenced in November 2005 based upon the previous EIA (EIAO Register Number AEIAR-062-2002) conducted and the Environmental Permit EP-139/2002 granted on the 28th August 2002. Due to minor changes to the detailed layout of the site and the site boundary, application for Variation to the Environmental Permit (VEP) (VEP-133/2004) was submitted to the Director of Environmental Protection (DEP) for approval. The variation to the EP (EP-139/2002/A) was granted by EPD in February 2004.

However, the decision by EPD to grant the above Environmental Permit was subject to a Judicial Review. The Judicial Review sided in the favour of the DEP, as did the subsequent Judgement from the Court of Appeal from the High Court for Judicial Review in March 2005. However, the DEP's decision to grant the EP was quashed by the Judgement of the Court of Final Appeal of July 2006.

The construction works were stopped following the Judgement of the Court of Final Appeal of July 2006. As such, in order to continue with the construction of the project, the project went through the statutory procedures under the EIAO again with a new design in order to obtain an environmental permit. The revised EIA was submitted in 2007 and the environmental permit (EP-262/2007) was granted in May 2007. EP-262/2007 has been amended to EP262/2007/A and issued by the EPD on 30 November 2007.

It should be noted that at the time of reporting, a further Variation to the Environmental Permit has been approved, primarily to allow for dredging works to continue during March 2008. As such, EP-262/2007/A has been amended to EP-262/2007/B and issued by the EPD on 27 February 2008.

The construction works and EM&A requirements resumed on 9th July 2007 following the latest requirements of the EP-262/2007 and EM&A Manual. Details regarding the EM&A requirements and changes should refer to the updated EM&A Manual. For the marine works, all piling activities were completed before the previous suspension of construction works in 2006.

1.1 PURPOSE OF THE REPORT

This is the **sixth** EM&A Report which summarizes the monitoring results and audit findings for the EM&A programme during the reporting period from **1st April** to **30th June 2008**.

1.2 KEY CONTACT INFORMATION

Key contact information of the Project is presented in *Table 1.1*.

Table 1.1 *Contact Information*

Name	Position	Telephone	Facsimile	E-mail
Airport Authority Hong Kong - Environmental Permit Holder				
Mr Amin Ebrahim	Assistant General Manager Aviation Logistics	2183 3108	2824 2786	ebraa@hkairport.com
Contractor - Leighton (Asia) Construction Limited				
Brian Gillon	Project Director	2823 1111	2529 8784	brian.gillon@leightonasia.com
Franchisee's Site Representative - ECO Aviation Fuel Development Limited				
Philip Siu	Franchisee's Site Representative	2963 2820	2563 6311	philip.siu@towngas.com
Environmental Team - ERM-Hong Kong Limited				
Craig Reid	Environmental Team Leader	2271 3000	2723 5660	craig.reid@erm.com
Independent Environmental Checker - Hyder Consulting Limited				
Dr Guiyi Li	Independent Environmental Checker	2911 2233	2805 5028	guiyi.li@hyder.com.hk

2.1 PROJECT AREA

The project area is in Area 38 of Tuen Mun and the pipelines are located in Urmston Road between Tuen Mun Area 38 and Sha Chau. The site is illustrated in *Annex A*.

2.2 ENVIRONMENTAL SENSITIVE RECEIVERS

No air and noise sensitive receivers were identified close to the project area. However, water sensitive receivers and ecological sensitive receivers were identified in the EIA study, and are shown in *Annex B*.

2.3 MAJOR CONSTRUCTION ACTIVITIES

A summary of the major works undertaken in this reporting period is shown in *Table 2.1*. *Table 2.2* presented the cumulative quantity of excavated materials up to 30th June 2008.

Table 2.1 Summary of Works Undertaken During the Reporting Period

Area	Works undertaken
Tuen Mun Area 38	Tank Farm and Bund Wall Construction Permanent Drainage Construction Operational & Fire Services Buildings Construction Jetty Works (Non-piling)
Submarine Pipeline Route	Dredging Operations

Table 2.2 Cumulative Quantity of Excavated Materials up to 30th June 2008

Type of Excavated Materials	Cumulative Bulk Volume (m ³)
Contaminated Mud	105,974
Uncontaminated Mud	97,815

2.4 MONITORING SCHEDULE OF THE REPORTING PERIOD

No water quality monitoring was conducted during the reporting period, hence presentation of the monitoring schedule is not applicable.

2.5 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since July 2007 is presented in *Table 2.3*. It was noted that construction noise permits GW-RW0676-07 and GW-RW0678-07 expired on 19 June and 18 June respectively during the reporting

month, and renewal applications were in progress. Land and marine based construction works on general holidays and in between 1900-0700 on regular days were temporarily suspended from the listed dates until new permits are granted by the EPD.

Table 2.2 Summary of Environmental Licensing, Notification and Permit Status

Permit/ Licenses/ Notification	Reference	Validity Period	Remarks
Environmental Permit	<i>EP-262/2007/B</i>	Throughout Project	Issued on 27 February 2008 (<i>EP-262/2007/A</i> on 30 November 2007, <i>EP-262/2007</i> issued on 31 May 2007, <i>EP-139/2002</i> originally granted on 28 August 2002 and <i>EP-139/2002/A</i> granted on 24 February 2004 were superseded)
Chemical Waste Producer Registration	<i>WPN 5111-421-L2174-25</i>	Throughout Project	Issued on 10 November 2005
Notification of Construction Works under Air Pollution Control (Construction Dust) Regulation	<i>H2104/U1D/5542/DG/DH/PL</i>	Throughout Project	Notification on 6 July 2007
Construction Noise Permit	<i>GW-RW0676-07</i>	21 December 2007 to 19 June 2008 (renewal application in progress)	For land-based works including air compressors, breakers, excavators, wheeled loaders, mobile cranes, concrete lorry mixers, hand-held pokers, bar benders/cutters, wood saws, grinders, submarine water pump, lorries with crane, dump trucks, rollers, ventilation fans and generators
	<i>GW-RW0677-07</i>	21 December 2007 to 29 February 2008	For marine dredging operation including grab dredger, tug boat, split hopper barge and motor sampan
	<i>GW-RW0678-07</i>	21 December 2007 to 18 June 2008 (renewal application was in progress)	For marine jetty works including concrete pump derrick barges, hand-held grinders, generators, air compressors, boring machines, water pumps, tug boat, grout mixers and grout pumps
	<i>GW-RW0094-08</i>	1 March to 31 March 2008	For marine dredging operation including grab dredger, tug boat, split hopper barge and motor sampan
Marine Dumping Permit	<i>EP/MD/08-064</i>	13 December 2007 to 29 February 2008	For Type 1 – Open Sea Disposal

Permit/ Licenses/ Notification	Reference	Validity Period	Remarks
	EP/MD/08-065	13 December 2007 to 12 January 2008	For Type 1d & Type 2 marine disposal
	EP/MD/08-071	13 January 2008 to 12 February 2008	For Type 1d & Type 2 marine disposal
	EP/MD/08-090	3 March to 31 March 2008	For Type 1d & Type 2 marine disposal
	EP/MD/08-091	3 March to 31 March 2008	For Type 1 - Open Sea Disposal
Wastewater Discharge License	EP760/421/011399/1	15 March 2006 to 31 March 2011	Issued on 15 March 2006

2.6 COMMUNITY LIAISON GROUP MEETING

According to the EP requirements, a Community Liaison Group (CLG) shall be established within three months after commencement of construction of the Project. The major duty of CLG is to advise on and monitor the proper design, construction and operation of the Project. The CLG comprises representatives from Airport Authority, members of Tuen Mun community and academics. The details of the CLG (including Membership and its Terms of Reference) and the meeting minutes can be found on the Project website (<http://www.paffhk.com>).

During the reporting month, a meeting was organised by the CLG on 6 June 2008. Meeting minutes can be found on the Project website (<http://www.paffhk.com>).

2.7 SUMMARY OF NON-COMPLIANCE WITH THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS

No environmental non-compliance was found during the reporting period.

Summary of Environmental Complaints

No environmental complaint was received during the reporting period. A statistical summary of environmental complaints since project commencement is presented in *Annex C*.

Summary of Environmental Summons

No summons was received in this reporting period. A statistical summary of legal proceeding since project commencement is presented in *Annex C*.

3.1 PREVIOUS ENVIRONMENTAL DEFICIENCIES AND FOLLOW-UP ACTIONS

As no environmental complaint was received over the last reporting period, no follow-up action was required.

Weekly site inspections were carried out by the ET on 3, 11, 17 and 25 April 2008, 2, 9, 15, 21 and 29 May 2008, and 4, 12, 20 and 27 June 2008. Overall, the site was in good orderly manner and no non-compliance was found.

Environmental deficiencies and follow-up actions/mitigation measures were identified during the inspections and summarised in *Table 3.1*.

Table 3.1 *Environmental Deficiencies (Observations) from Site Inspections during Reporting Period*

Reporting Month	Observation	Follow-up Action
April 2008	Worker was observed using unsuitable tool in cutting wood beams, generating smoke and dust.	Worker stopped operation and resumed works with suitable tool.
	General wastes were mixed with construction wastes without proper sorting	Contractor reinforced sub-contractors' awareness on waste management practice
	Oil sheens were observed on ground near the chemical waste storage	Contractor arranged clearance of oil sheens.
May 2008	Stagnant water pools were observed at some locations on site.	Contractor arranged clearance of stagnant water pools.
	Mud and dirt were observed in the car washing facility.	Contractor arranged clearance of silt and mud from the water basin.
	General wastes were mixed with construction wastes without proper sorting	Contractor reinforced sub-contractors' awareness on waste management practice.
	Oil sheens were observed on ground due to improper storage of equipment and chemicals	Contractor stored equipment and chemicals in suitable containers to avoid leakages.
	Some chemical wastes were not properly labelled.	Contractors put back suitable labels onto chemical waste containers.
June 2008	Sediment plumes were observed in the marine area near the water discharge outlet.	Contractor cleared sedimentation tank and car wash facility to avoid overflow of silt and dirt.

Reporting Month	Observation	Follow-up Action
	Stagnant water pools were observed in some works area and in drip trays.	Contractor arranged water clearances.
	Oil sheens were observed in the workshop and chemical waste storage.	Contractor designated a bunded area for cleaning of oily equipments. Contractor also arranged cleaning of chemical waste storage.
	General wastes were piled up on the ground near the operation building.	Contractor provided waste skips for collection of general wastes produced.

Overall, the site was in a good orderly manner. The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

3.2 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

The implementation status of environmental mitigation measures and requirements as stated in the EIA Report, Environmental Permits and EM&A Manual during the reporting period is summarized in *Annex D*.

4 ENVIRONMENTAL MONITORING

4.1 AIR AND NOISE

Air and Noise monitoring was not required for the project.

4.2 WATER QUALITY

No dredging activities were scheduled from 1 April 2008 onwards. Water quality monitoring was therefore not required for the reporting period.

4.3 POPs MONITORING

No POPs monitoring was undertaken since there was no dredging operation during the reporting month. POPs results of monitoring during dredging activities, collected on 24 March 2008, were received during the reporting month. All POPs (ie total PCBs, total DDTs and total PAHs) were found to be below detection limits, except the total PAHs of Control Station C1 during mid-flood tidal condition. As C1 is a Control Station, such levels were not considered to be attributable to works. Monitoring results and QA/QC reports for POPs testing are presented in *Annex E*.

4.4 WASTE MANAGEMENT

The Contractor's revised Waste Management Plan (Revision 4) (WMP) was submitted to EPD on 20th September 2007. Pursuant to EP *Condition 3.3*, the Contractor submitted the updated and revised WMP (Revision 5) to the ET on 3rd June 2008. The ET reviewed the WMP and offered comments to the Contractor on 16th June 2008. Response to comment (RTC) from the Contractor is now in progress.

4.5 CULTURAL HERITAGE

In accordance with the *EM&A Manual*, a marine archaeological Watching Brief of two sub-surface anomalies was implemented from 21st to 28th February 2008 during the dredging of the surrounding seabed located within the route of the twin pipelines from the PAFF tank farm at Tuen Mun Area 38 to Sha Chau.

A marine archaeological Watching Brief of two sub-surface anomalies was implemented from 21st to 28th February 2008. No archaeological sites or relics were found and it was considered by the licensed Marine Archaeologist that the anomalies have no cultural heritage significance. No additional mitigation measures were thus required to be implemented by the PAFF project in regard to the anomalies SS1 and SS2.

The *Watching Brief Report*, verified by the Independent Environmental Checker, was submitted to the EPD and AMO on 9th May 2008.

4.6 *LANDSCAPE AND VISUAL*

According to the EIA report and EM&A Manual, mitigation measures and site inspection are required during the landscaping/planting works. The berm/landscaping bund was dominated by vegetation which was grown during the project suspension period. The transplanted trees were in good and healthy conditions.

The weekly site inspections included audits on landscape and visual issues to ensure that the site was in orderly acceptable manner.

4.7 *LAND CONTAMINATION, HAZARD TO LIFE AND FUEL SPILL RISK*

According to the EIA report and EM&A Manual, mitigation measures and design phase audit are required to minimise the risk of fuel spill and hazards. The Contractor will submit the updated design audit plan according to the EP requirements.

Pursuant to Condition 3.5 of the EP, the Contractor submitted two design drawings entitled Fencing and Security Wall Layout Plan (PAFF/LC/02/DWG/C/0176 Revision A) and Fencing and Security Wall Section (PAFF/LC/02/DWG/C/0177 Revision A) to the ET for certification on 30th July 2007. The ET reviewed the drawings and offered comment on the design of the security walls and bund walls, taking into account of Condition 3.5a of the EP, to the Contractor on 31st August 2007. Response to comment (RTC) from the Contractor was received by the ET on 19th September 2007. A review of the RTC is now in progress.

Weekly site inspection covered the waste management aspects which included measures to prevent land contamination by chemical wastes.

4.8 *ECOLOGY*

Dolphin Visual Monitoring

Dolphin visual monitoring was not required as no dredging works were scheduled for the reporting period.

4.9 *EM&A MANUAL*

The *EM&A Manual* for the Project has been updated by the ET to include the detailed arrangements of setting up a Community Liaison Group, carrying out design audit, and monitoring of Persistent Organic Pollutants (POPs) during construction of the Project. No further actions regarding the EM&A manual were required during the reporting period.

Baseline water quality monitoring was conducted between 24 October and 30 October 2007 at six designated monitoring stations (three impact stations and three control stations) established for the Project in accordance with the *EM&A Manual*. The *Final Baseline Monitoring Report* was submitted to the EPD on 21 November and comments were received from the EPD on 6th December. A revised *Final Baseline Monitoring Report* was submitted to the EPD on 20th February 2008 with no further comments received and later placed under the EIAO register.

5 *FUTURE KEY ISSUES AND CONCLUSION*

5.1 *KEY ISSUES FOR THE NEXT REPORTING PERIOD*

It should be noted that dredging activities have been suspended from 1st April onwards and are tentatively scheduled to resume in September 2008. No dredging operation will hence be undertaken in the next reporting period. As such, a key issue to be considered in the next report period will be:

- Dust release and suppression.

5.2 *IMPACT PREDICTION FOR THE NEXT REPORTING PERIOD*

Provided that environmental mitigation measures including good on-site practises are properly implemented, it is not expected that unacceptable adverse impact will arise.

5.3 *WORKS AND MONITORING SCHEDULE FOR THE NEXT REPORTING PERIOD*

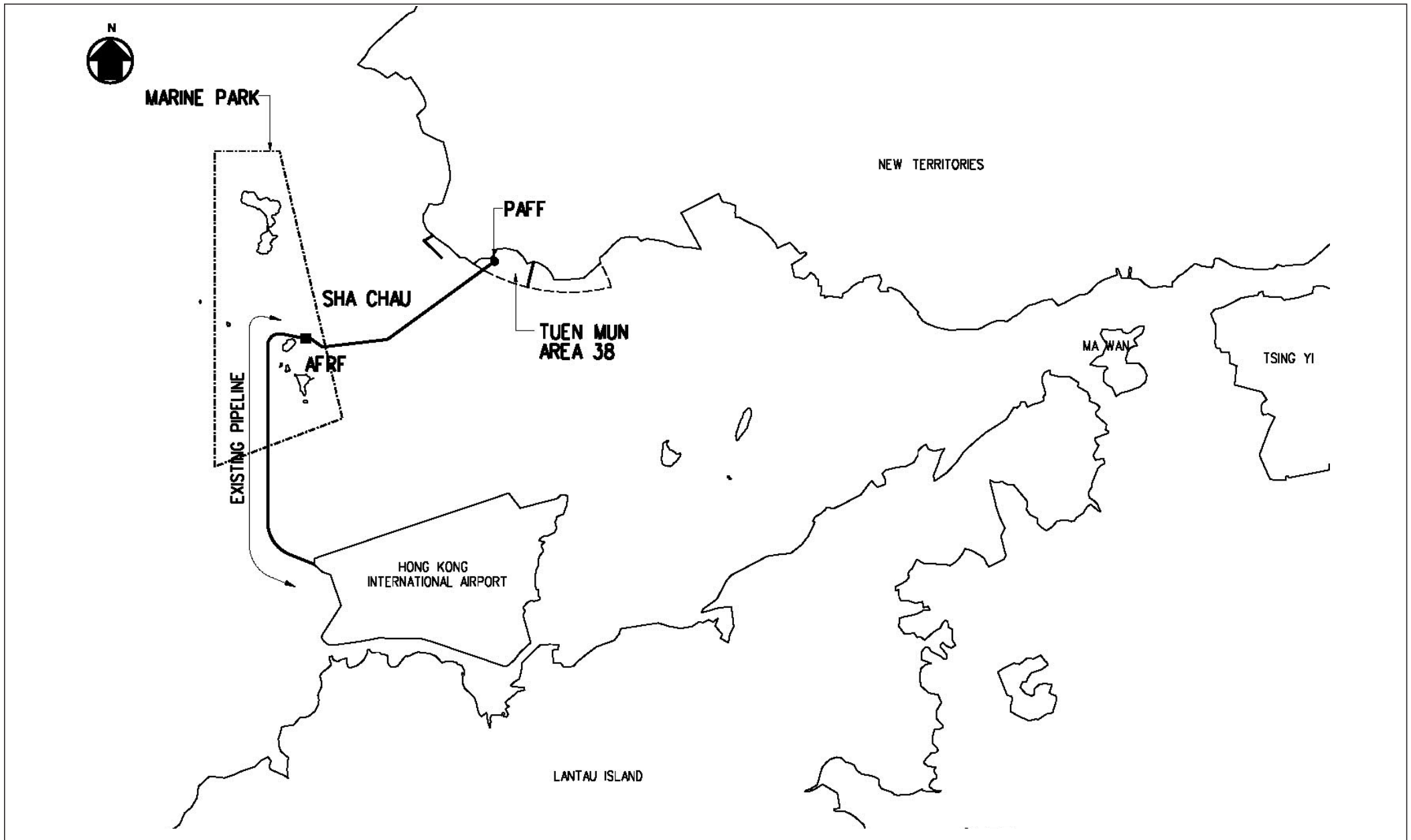
Work programme for the next reporting period includes jetty platform works (non-piling), site works (construction works for tank farm, operational and fire services buildings, drainages, bund wall, security wall etc) and dredging operation. Weekly site inspections will be undertaken.

5.4 *CONCLUSION*

The EM&A works were conducted throughout the construction period and the relevant monitoring was conducted in accordance with the EP's requirements. Mitigation measures were used to minimise the environmental impacts, where appropriate. Some environmental deficiencies were observed during the site inspections and the Contractor implemented corrective action to mitigate the issues. Overall, the site was in an orderly manner.

Annex A

Project Location



Annex A

Location of PAFF

FILE: 0018105bb1
DATE: 12/11/2007






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Annex B

Water Quality Monitoring
Stations, Water Quality and
Ecological Sensitive
Receivers

KEY

-  Control Stations
-  Impact Stations
-  Marine Park
-  Proposed Pipeline
-  Potential IMO1 & IMO2 Monitoring Zone

Marine Park
(Water Sensitive Receiver)

C2 (NM5)

C1 (NM3)

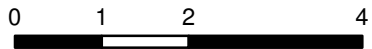
MPB1

MPB2

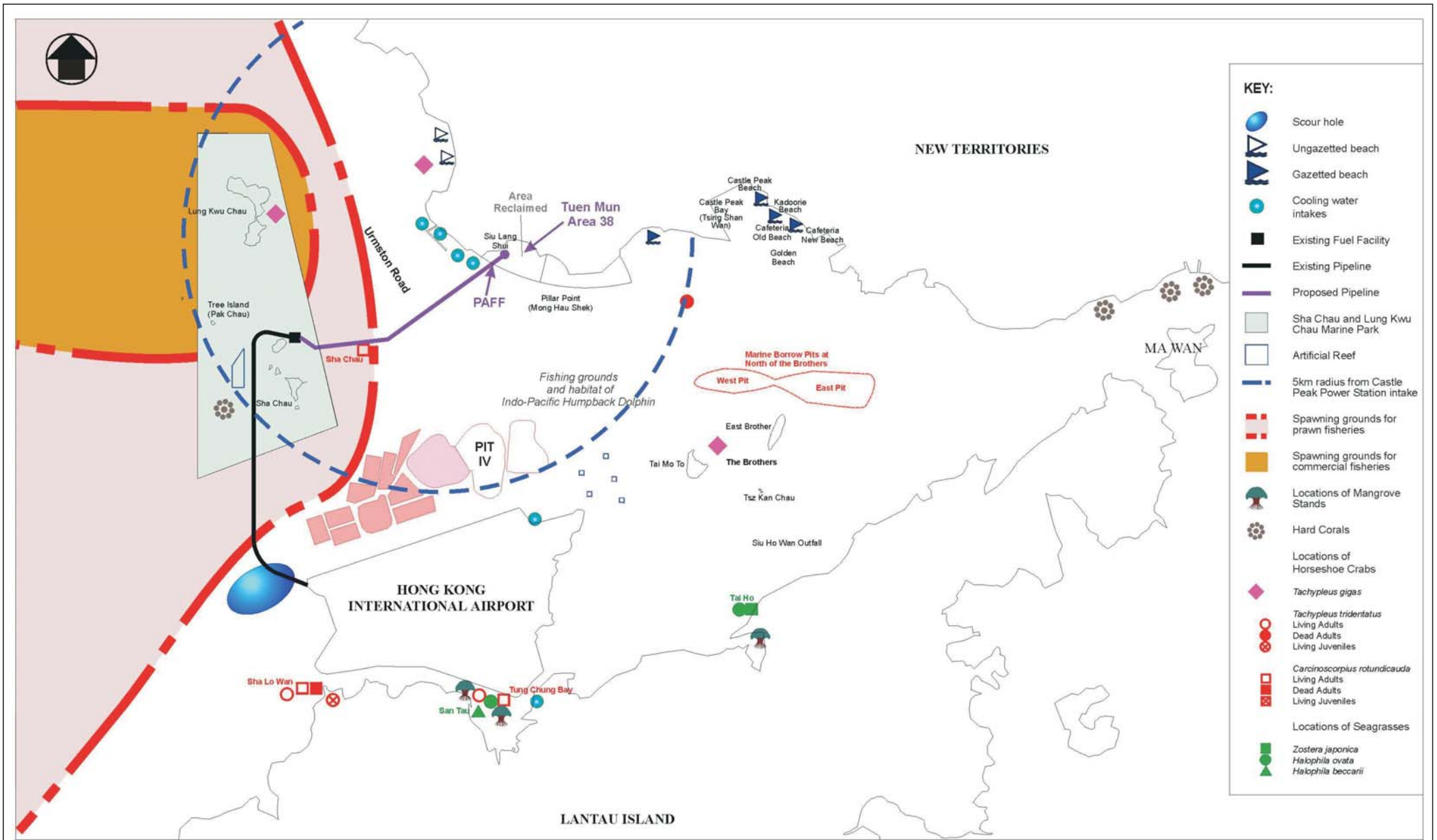
C3 (NM6)



Kilometers



Water Sensitive Receiver and Water Quality Monitoring Locations



Annex B

Water Quality and Ecological Sensitive Receivers

FILE: C2475aa
DATE: 12/11/2007

(Source : PAFF for Hong Kong International Airport EIA, Mouchel 2002)

Environmental
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Annex C

Cumulative Complaints Statistics

Summary of Environmental Complaints

Reporting Period	Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
Before construction works	1	1	Dust
18/11/05 - 15/12/05	1	2	Dust
15/12/05 - 14/01/06	0	2	Nil
15/01/06 - 14/02/06	0	2	Nil
15/02/06 - 14/03/06	0	2	Nil
15/03/06 - 14/04/06	0	2	Nil
15/04/06 - 14/05/06	0	2	Nil
15/05/06 - 14/06/06	0	2	Nil
15/06/06 - 14/07/06	0	2	Nil

Re-commencement of construction works on 9th July 2007

09/07/07 - 31/07/07	0	2	Nil
01/08/07 - 31/08/07	0	2	Nil
01/09/07 - 30/09/07	0	2	Nil
01/10/07 - 31/10/07	0	2	Nil
01/11/07 - 30/11/07	0	2	Nil
01/12/07 - 31/12/07	0	2	Nil
01/01/08 - 31/01/08	0	2	Nil
01/02/08 - 29/02/08	0	2	Nil
01/03/08 - 31/03/08	0	2	Nil
01/04/08 - 30/04/08	0	2	Nil
01/05/08 - 31/05/08	0	2	Nil
01/06/08 - 30/06/08	0	2	Nil

Summary of Environmental Summons

Reporting Period	Environmental Summons		
	Frequency	Cumulative	Summon Nature
18/11/05 - 15/12/05	0	0	Nil
16/12/05 - 14/01/06	0	0	Nil
15/01/06 - 14/02/06	0	0	Nil
15/02/06 - 14/03/06	0	0	Nil
15/03/06 - 14/04/06	0	0	Nil
15/04/06 - 14/05/06	0	0	Nil
15/05/06 - 14/06/06	0	0	Nil
15/06/06 - 14/07/06	0	0	Nil

Re-commencement of construction works on 9th July 2007

09/07/07 - 31/07/07	0	0	Nil
01/08/07 - 31/08/07	0	0	Nil
01/09/07 - 30/09/07	0	0	Nil
01/10/07 - 31/10/07	0	0	Nil
01/11/07 - 30/11/07	0	0	Nil
01/12/07 - 31/12/07	0	0	Nil
01/01/08 - 31/01/08	0	0	Nil
01/02/08 - 29/02/08	0	0	Nil

Reporting Period	Environmental Summons		
01/03/08 - 31/03/08	0	0	Nil
01/04/08 - 30/04/08	0	0	Nil
01/05/08 - 31/05/08	0	0	Nil
01/06/08 - 30/06/08	0	0	Nil

Annex D

Implementation
Programme of Mitigation
Measures

ANNEX D IMPLEMENTATION SCHEDULE

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location / Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Schedule			Maintenance Agency	Implementation Status
						D	C	O		
Water Quality										
6.7	6.8.1	There should be no access to the shore or working from land within the Marine Park. No marine anchors shall be used within the Marine Park.	Marine Park / Pipeline Dredging	Contractor	TMEIA		Y		N/A	Pending
6.7	6.8.1	No hydraulic dredging within Marine Park.	Marine Park / Pipeline Dredging	Contractor	TMEIA		Y		N/A	Pending
6.7	6.8.1	Dredging for pipeline trench should be timed to coincide with maintenance dredging for Sha Chau AFRF marine access channel if relevant.	Sha Chau AFRF Marine access channel	Airport Authority	TMEIA		Y		N/A	Pending
6.4		The work rate for dredging should not exceed 4,000 m ³ /hr for the TSHD and 7,000 m ³ /day for the grab dredger.	Marine Park / Pipeline Dredging	Contractor	TMEIA		Y		N/A	Pending
6.7	6.8.1	Standard good dredging practice measures shall be written in the dredging contract.	Marine Park / Pipeline Dredging	Franchisee	TMEIA		Y		N/A	Pending
6.7	6.8.1	Use of Lean Material Overboard (LMOB) systems shall be prohibited. No mud overflow is to be permitted for dredging using TSHD.	Dredged areas/ Pipeline Dredging	Contractor	TMEIA Marine Fill Committee Guidelines. DASO permit conditions		Y		N/A	Pending
6.7	6.8.1	Mechanical grabs shall be designed and maintained to avoid spillage and should seal tightly while being lifted.	Dredged areas/ Pipeline Dredging	Contractor	TMEIA Marine Fill Committee Guidelines. DASO permit conditions		Y		N/A	Pending

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location / Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Schedule			Maintenance Agency	Implementation Status
						D	C	O		
6.7	6.8.1	Barges and hopper dredgers shall have tight fittings seals to their bottom openings to prevent leakage of material.	Dredged areas/ Pipeline Dredging	Contractor	TMEIA Marine Fill Committee Guidelines. DASO permit conditions		Y		N/A	Pending
6.7	6.8.1	Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes	Dredged areas/ Pipeline Dredging	Contractor	TMEIA Marine Fill Committee Guidelines. DASO permit conditions		Y		N/A	Pending
6.7	6.8.1	Loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation.	Dredged areas/ Pipeline Dredging	Contractor	TMEIA Marine Fill Committee Guidelines. DASO permit conditions		Y		N/A	Pending
6.7	6.8.1	Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved.	Dredged areas/ Pipeline Dredging	Contractor	TMEIA Marine Fill Committee Guidelines. DASO permit conditions		Y		N/A	Pending
6.7	6.8.1	Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action.	Dredged areas/ Pipeline Dredging	Contractor	TMEIA Marine Fill Committee Guidelines. DASO permit conditions		Y		N/A	Pending
6.7	6.8.1	All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.	Dredged areas/ Pipeline Dredging	Contractor	TMEIA Marine Fill Committee Guidelines. DASO permit conditions		Y		N/A	Pending

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location / Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Schedule			Maintenance Agency	Implementation Status
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6.7	6.8.1	The works shall not cause foam, oil, grease, letter or other objectionable matter to be present in the water within and adjacent to the works site.	Dredged areas/ Pipeline Dredging	Contractor	TMEIA Marine Fill Committee Guidelines. DASO permit conditions		Y		N/A	Ongoing
6.7	6.8.1	Placement of pipeline trench backfill should be undertaken in a controlled manner to minimise impacts. Backfilling with rock should be undertaken either down pipe or by a reverse grab operation or other controlled technique to ensure that this material does not mound on the seabed	Pipeline trench/ Pipeline Dredging	Contractor	TMEIA Minimise disturbance		Y		N/A	Pending
6.7	6.8.1	Wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing
6.7	6.8.1	Sewage effluent and discharges from on-site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the WPCO or collected for disposal offsite. The use of soakaways shall be avoided.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing
6.7	6.8.1	Storm drainage should be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sandbag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location / Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Schedule			Maintenance Agency	Implementation Status
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6.7	6.8.1	Silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing
6.7	6.8.1	Temporary access roads should be surfaced with crushed stone or gravel.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing
6.7	6.8.1	Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing
6.7	6.8.1	Measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing
6.7	6.8.1	Open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing
6.7	6.8.1	Manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing

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6.7	6.8.1	Discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing
6.7	6.8.1	All vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing
6.7	6.8.1	Wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing
6.7	6.8.1	The section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing
6.7	6.8.1	Wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing
6.7	6.8.1	Vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for off site disposal.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing

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6.7	6.8.1	The contractors shall prepare oil/chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing
6.7	6.8.1	Waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing
6.7	6.8.1	All fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing
6.7	6.8.1	Surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.	Land site/ Throughout construction period	Contractor	TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards		Y		N/A	Ongoing
6.7	6.8.1	Wastewater from pipe commissioning dewatering exercises shall be stored on site and for chemical analysis and safe disposal in accordance with the WPCO.	Tank Farm/Tank farm commissioning	Franchisee	TMEIA WPCO TM on Effluent Standards		Y		N/A	Ongoing
6.7	Section 6	All construction works shall be subject to routine audit to ensure implementation of all EIA recommendations and good working practice.	Land site/ Throughout construction period	Contractor	EM&A Manual		Y		N/A	Ongoing
6.7	Section 6	Submarine section of aviation fuel pipeline shall be covered with rock armour protection which shall not protrude above the level of the adjacent natural seabed.	Submarine pipeline	Franchisee	TMEIA Rock armour to minimum thickness of 1m	Y	Y		Franchisee	Pending

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location / Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Schedule			Maintenance Agency	Implementation Status
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6.7	Section 6	Detailed emergency response procedures shall be drawn up. These will include requirements to maintain floating oil booms, absorbent materials and skimmers on site at all times.	All facilities	Franchisee	TMEIA Industry Standards e.g. Oil Companies International Marine Forum			Y	Franchisee	Pending
6.7	Section 6	Coupling points on the jetty will be protected with slop collection utilities.	Jetty	Franchisee	TMEIA Rock armour to minimum thickness of 1m			Y	Franchisee	Pending
6.7	Section 6	Auxiliary tanks shall be permanently maintained at the tank farm for recovered fuel and slops.	Tank farm	Franchisee	TMEIA			Y	Franchisee	Pending
6.7	Section 6	Oily drainage systems and slop collection systems will connect to an oil/water separator.	Tank farm	Franchisee	TMEIA Industry Standards e.g. Oil Companies International Marine Forum			Y	Franchisee	Pending
6.7	Section 6	All tanks shall be bunded to a capacity of at least 150% of the largest individual tank in each compound by 2040. Tank pits shall be protected by an impermeable bed (e.g. geotextile sheeting) to prevent seepage of aviation fuel to ground. A leak detection system shall be installed beneath the containment membrane.	Tank farm	Franchisee	TMEIA Hong Kong Code of Practice for Oil Installations, 1992			Y	Franchisee	Pending
6.7	Section 6	There shall be no direct outlet from the bund. A collection pump shall be included in the base. Removal of accumulated rainwater shall be activated manually and discharged to storm drain via an oil/water separator.	Tank farm	Franchisee	TMEIA			Y	Franchisee	Pending

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6.7	Section 6	Contingency procedures shall be drawn up to ensure containment and safe disposal of any fuel lost from tanks or pipework. Suitable absorbent materials (e.g. sand or earth) shall be kept on site to deal with spillages.	Tank farm	Franchisee	TMEIA Hong Kong Code of Practice for Oil Installations, 1992			Y	Franchisee	Pending
6.7	Section 6	Valves shall be installed within the storm drainage system to facilitate the retention of spillages.	Tank farm	Franchisee	TMEIA		Y		Franchisee	Pending
6.10	Section 6	Water quality monitoring shall be undertaken for suspended solids, turbidity, and dissolved oxygen.	Design monitoring stations as defined in EM&A Manual, section 6. Construction period when dredging takes place within 1000m of Marine Park and along entire length of the pipeline	Contractor	EM&A Manual		Y		N/A	Pending

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location / Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Schedule			Maintenance Agency	Implementation Status
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6.10	Section 6	Routine water quality monitoring in the vicinity of the PAFF site to check the effectiveness of the proposed precautionary measures implemented for on-site spill control. The details of the monitoring to be undertaken will be prepared by the Franchisee as part of the PAFF Operations Manual and the details will be agreed with the relevant authorities within 3 months of the commencement of operation of the PAFF. Monitoring should include but not be limited to the parameters of TPH and PAH and reference should be made to the existing monitoring programme undertaken for the fuel tank farm on the HKIA platform.	Operational phase. Location and frequency to be determined and agreed with relevant authorities	Franchisee	EM&A Manual		Y	N/A	Pending	
Ecology										
7.8	5.3	Undertake post construction dolphin abundance monitoring.	Construction	Contractor	TMEIA		Y	N/A	Pending	
7.8	5.3	A 250m dolphin exclusion zone shall be implemented and dredging shall not begin until the observer has confirmed that the area has been clear for 30 minutes.	250m around dredger/throughout dredging in Marine Park and along the length of pipeline	Contractor	TMEIA		Y	N/A	Pending	

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7.8	5.3	Works will be restricted to a daily maximum of 12 hours within daylight hours.	Throughout dredging in Marine Park and along the length of the pipeline except for the section crossing Urmston Road Channel	Contractor	TMEIA		Y		N/A	Pending
7.8	5.3	Avoidance of dolphin main calving season between March and August.	Throughout dredging in Marine Park and along the length of the pipeline	Contractor	TMEIA		Y		N/A	Pending
Landscape & Visual										
8.10	7.2.1	The construction programme for the PAFF should be reduced to the shortest possible period.	PAFF site / throughout construction period	Contractor	TMEIA	Y	Y		N/A	Ongoing
8.10	7.2.1	The extent and periphery of the works areas should be managed so that they are as small as possible and do not appear cluttered, untidy and unattractive, particularly to road traffic along Lung Mun Road.	PAFF site / throughout construction period	Contractor	TMEIA		Y	Y	N/A	Ongoing
8.10	7.2.1	Temporary hoarding barriers should be of a recessive visual appearance in both colour and form.	PAFF site / throughout construction period	Contractor	TMEIA	Y	Y		N/A	Ongoing
8.10	7.2.1	Materials should be stored in areas with the least obstruction to residents, pedestrians and traffic.	PAFF site / throughout construction period	Contractor	TMEIA		Y	Y	N/A	Ongoing

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8.10	7.2.1	All material stockpiles should be covered with an impermeable material and sandbagging diversions should be placed around exposed soil.	PAFF site / throughout construction period	Contractor	TMEIA	Y	Y		N/A	Ongoing
8.10	7.2.1	Conservation of existing and imported soil resources.	PAFF site / throughout construction period of fuel tank expansion	Contractor	TMEIA			Y	N/A	Ongoing
8.10	7.2.1	A landscape perimeter bund comprising containment bund-wall, access road and planting buffer shall be built and maintained around the tank farm.	PAFF site / throughout construction period	Project Proponent	TMEIA	Y	Y	Y	Franchisee	Ongoing
8.10	7.2.1	The design of the PAFF should incorporate materials, details and textures which are visually recessive.	PAFF site / design	Project Proponent	TMEIA	Y	Y		N/A	Ongoing
8.10	7.2.1	Colours should be of low chromatic intensity to reduce the potential contrast between the structure and their background.	PAFF site tanks / design	Project Proponent	TMEIA	Y	Y		N/A	Ongoing
8.10	7.2.1	Visually permeable security fencing should be used around the perimeter.	Site perimeter	Project Proponent	TMEIA	Y	Y	Y	N/A	Ongoing
8.10	7.2.1	Minimum amount of lighting for the tanks shall be used, only applied for safety at the key access points and staircases.	Tanks / Operational phase	Project Proponent	TMEIA	Y	Y	Y	N/A	Ongoing
8.10	7.2.1	Limited lighting intensity on the site.	PAFF site / Operational phase	Project Proponent	TMEIA	Y	Y	Y	N/A	Ongoing
8.10	7.2.1	Directional down lighting is suggested to minimise light spill to the surrounding area.	PAFF site / Operational phase	Project Proponent	TMEIA	Y	Y	Y	N/A	Ongoing

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9.8.1	9.2.1	<p>Undertake a watching brief during dredging of the pipeline within 25m either side of anomalies SS1 and SS2. This should comprise:</p> <ul style="list-style-type: none"> Dredge operators to be made aware of the potential presence of cultural heritage material. The operators would be required to report to the AMO any unusual resistance and/or recovery of timbers, anchors or other wreck related material. Any obstacles encountered during the dredging that are of timber should be reported to the marine archaeologist. The obstacle should be avoided and not removed until it has been assessed by the marine archaeologist as to whether the obstacle is of cultural heritage importance; A marine archaeologist shall be on board the dredging barge during dredging within 25m either side of SS1 and SS2 in the event of any unusual resistance occurring or blockages which requires the dredge head to be brought on deck for cleaning and examination; and, 	Within vicinity of SS1 and SS2	Franchisee	TMEIA		Y		N/A	Pending

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		<ul style="list-style-type: none"> Dredging to cease in the nominated area SS1 after 3 meters of sediment removal and after 1 metre for SS2. A dive survey will then be undertaken to examine the trench for possible cultural remains. 								
9.8.2	9.2.1	During the course of the watching brief, if the targets are identified as being potentially archaeologically important, then an immediate marine archaeological impact assessment in accordance with EIAO TM Annex 19 will be required to be undertaken by a qualified marine archaeologist.	With vicinity of SS1 and SS2	Franchisee	TMEIA		Y		N/A	Pending
9.8.4	9.2.1	Any changes, additions or alterations to the dredging method and alignment should be further assessed by marine archaeologist to determine if any further assessment is required.	Pipeline alignment	Franchisee	TMEIA		Y		N/A	Pending
Fuel Spill Risk										
11.4.1	10.2	Tank farms will be constructed in a bunded area surrounding the tanks which will have collection capacity of 150% of the maximum content of the largest tank.	Tank farm / Design Phase	Franchisee	TMEIA		Y		N/A	Pending
11.4.1	10.2	Emergency shut down valves shall be installed within the wider site storm drainage system.	Tank farm / Design Phase	Franchisee	TMEIA		Y		N/A	Pending
11.4.1	10.2	An impermeable membrane shall be installed in the tank foundation beneath the tank bottom.	Tank farm / Design Phase	Franchisee	TMEIA		Y		N/A	Pending
11.4.1	10.2	Pipeline to be covered with a protective rock armour layer.	Pipelines/ Design Phase	Franchisee	TMEIA		Y		Franchisee	Pending

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11.4.1	10.2	An integrated leak detection system shall be installed to all pipelines to provide early detection of any leak.	Pipelines/ Design Phase	Franchisee	TMEIA	Y			N/A	Pending
11.4.1	10.2	An automatic shut-off system shall be implemented for pipelines.	Pipelines/ Design Phase	Franchisee	TMEIA	Y			N/A	Pending
11.4.1	10.2	A workboat shall be on standby at the jetty during tanker berthing.	Jetty/ During Tanker Berth	Franchisee	TMEIA	Y		Y	N/A	Pending
11.4.1	10.2	Skimmers shall be available for quick deployment in case of a spill.	Jetty/ During Tanker Berth	Franchisee	TMEIA	Y		Y	N/A	Pending
11.4.1	10.2	An emergency response plan shall be prepared prior to the operation of the PAFF.	Jetty/ During Tanker Berth	Franchisee	TMEIA	Y		Y	N/A	Pending
11.4.1	10.2	Operator-training programme shall be implemented.	Jetty/ During Tanker Berth	Franchisee	TMEIA	Y		Y	N/A	Pending
11.6	10.4	During the planning of the later phase of the tank farm development, in order to ensure that the required mitigation measures are undertaken at that time, review the EIA report only if the latest technology, industrial standards and statutory requirements have changed by that time.	During planning stage for future tank construction	Franchisee	TMEIA			Y	N/A	Pending

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11.6	10.4	Regular inspections and audits will be undertaken by the Franchisee during the operational phase of the facility: <ul style="list-style-type: none"> Two inspections every year of the tank farm, jetty and pipelines including one undertaken pursuant to the Joint Inspection Group (JIG) explained above; Inspection of the whole sub sea pipelines every 5 to 10 years; Health, Safety and Environmental audit of the facility once every 3 years; and, Inspection of the structural integrity of the tanks once per year. 	Operation	Franchisee	TMEIA			Y	N/A	Pending
11.6	10.4	Prepare an Environmental Management Plan to ensure the on-going adequacy of the fuel spill contingency plan and that it is being implemented as required and that the above mitigation measures have been incorporated and are effective.	Within 3 months of start of operation of the PAFF with audits every 24 months	Franchisee	TMEIA			Y	N/A	Pending
Land Contamination										
13.5.1	10.2	Bunding shall be provided by all fuel storage areas to at least 150% of largest individual tank in each compound.	Tank farm / Design	Franchisee	TMEIA	Y			N/A	Pending
13.5.1	10.2	Relevant design standards for storage tanks, pipework, containment and drainage shall be adhered to.	Tank farm / Design	Franchisee	TMEIA	Y			N/A	Pending
13.5.1	10.2	Plant inspections and maintenance shall be undertaken once per month.	Tank farm / Design	Franchisee	TMEIA	Y	Y	Y	N/A	Pending

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13.5.1	10.2	Impermeable lining shall be provided for all tank pits.	Tank farm / Design	Franchisee	TMEIA	Y			N/A	Pending
13.5.1	10.2	Leak detection systems shall be provided to all valves.	Tank farm / Design	Franchisee	TMEIA	Y			N/A	Pending
13.5.1	10.2	Surface drainage shall be contained and treated prior to discharge.	Tank farm / Design	Franchisee	TMEIA	Y	Y	Y	N/A	Pending
13.5.1	10.2	Emergency spill response plans shall be prepared.	Tank farm / Design	Franchisee	TMEIA	Y		Y	N/A	Pending
13.5.1	10.2	Spill control materials and equipment shall be provided on site.	Tank farm / Design	Franchisee	TMEIA	Y		Y	N/A	Pending
13.5.1	10.2	Runoff from the roof of site buildings and landscaped areas shall be conveyed in closed drains to the nearest storm water drain to prevent the generation of excessive quantities of surface water which may be polluted.	Tank farm / Design	Franchisee	TMEIA	Y		Y	N/A	Pending
13.5.5	10.2	Suitable absorbent materials (e.g. sand or earth) shall be kept on site to deal with spills. Chemical dispersants shall not be employed.	Tank farm / Design	Franchisee	TMEIA	Y			N/A	Pending
13.5.5	10.2	The facility shall be designed, constructed, operated and maintained in full accordance with the Code of Practice for Oil Installations, 1992.	Tank farm / Design	Franchisee	TMEIA	Y	Y	Y	N/A	Pending
13.5.5	10.2	Tank pressure testing shall be carried out routinely to check for possible tank leaks. Product inventory monitoring shall be integrated into site management procedures to check for any abnormal or unexpected product loss.	Tank farm / Design	Franchisee	TMEIA	Y	Y	Y	N/A	Pending
13.5.5	10.2	Tank overfill monitoring systems shall be installed and regularly tested. Inlet valves shall be designed to automatically shutdown on exceedance of "high-high level" to prevent over-filling.	Tank farm / Design	Franchisee	TMEIA	Y	Y	Y	N/A	Pending

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13.5.5	10.2	Pipe leakages shall be routinely checked for by means of a pressure sensitive leak detection system and routine inventory control.	Tank farm / Design	Franchisee	TMEIA	Y	Y	Y	N/A	Pending
13.5.5	10.2	Drainage from areas of hardstanding shall be treated by means of oil/ water separators prior to discharge to storm drain. All surface drainage shall be fitted with closure valves to provided additional containment and facilitate clean up of any leaks.	Tank farm / Design	Franchisee	TMEIA	Y	Y	Y	N/A	Pending
13.5.5	10.2	The delivery pipeline from the jetty and the supply line to the airport shall be fitted with pressure sensitive leak detectors.	Tank farm / Design	Franchisee	TMEIA	Y	Y		N/A	Pending
Waste Management										
14.7.2	8.3.1	The Contractor shall identify a coordinator for the management of waste.	Contract mobilisation	Contractor	TMEIA		Y		N/A	Ongoing
14.7.2	8.3.1	The waste coordinator shall prepare and implement a Waste Management Plan which specifies procedures such as ticketing system, to facilitate tracking of loads and to ensure that illegal disposal of waste does not occur, and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposal.	Contract mobilisation	Contractor	TMEIA, Works Branch Technical Circular No. 5/99 for the Trip-ticket System for Disposal of Construction and Demolition Material		Y		N/A	Ongoing

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14.7.2	8.3.1	The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges.	Contract mobilisation	Contractor	TMEIA, Land (Miscellaneous Provisions) Ordinance (Cap 28); Waste Disposal Ordinance (Cap 354); Dumping at Sea Ordinance (Cap 466); Water Pollution Control Ordinance.		Y		N/A	Ongoing
14.7.2	8.3.1	No waste shall be burnt on site.	PAFF Site throughout construction period	Contractor	TMEIA		Y		N/A	Ongoing
14.7.2	8.3.1	Excavated material shall be used on site for purposes of landscaping or formation of bund walls as far as possible.	All site / throughout construction period	Contractor	TMEIA		Y		N/A	Ongoing
14.7.2	8.3.1	All material shall be reused on site as far as practicable, including formwork plywood, topsoil and excavated material.	All site / throughout construction period	Contractor	TMEIA		Y		N/A	Ongoing
14.7.2	8.3.1	Suitable provisions shall be included in the construction contract to ensure that the Contractor sorts and recycles waste.	Contract preparation stage	HyD	TMEIA		Y		N/A	Ongoing

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location / Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Schedule			Maintenance Agency	Implementation Status
						D	C	O		
14.7.2	8.3.1	Re-use and recycling of waste must always be considered first. Waste disposal shall only be undertaken in the last resort. Any surplus material generated shall be sorted on site into construction and demolition (C&D) waste and the public fill fraction. A sorting facility shall be set up on the site.	All areas / throughout construction period	Contractor	TMEIA		Y		N/A	Ongoing
14.7.2	8.3.1	The site and surroundings shall be kept tidy and litter free.	All areas / throughout construction period	Contractor	TMEIA		Y		N/A	Ongoing
14.7.2	8.3.1	The C&D waste shall be disposed of at a licensed landfill or deposited at an authorised waste transfer facility and the material suitable for public fill delivered to a public filling area, public filling barging point or public fill stockpile area after obtaining the appropriate licence.	CEDD public fill stockpile in Mui Wo, North Lantau or Mui Wo refuse transfer stations / Throughout construction	Contractor	TMEIA		Y		N/A	Ongoing
14.7.2	8.3.1	Stockpile material shall avoid vegetated areas.	All areas / throughout construction period	Contractor	TMEIA		Y		N/A	Ongoing

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location / Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Schedule			Maintenance Agency	Implementation Status
						D	C	O		
14.7.2	8.3.1	Stockpiles shall be covered by tarpaulin and/or watered as required.	All areas / throughout construction period, particularly during dry season	Contractor	TMEIA, Public Health and Municipal Services Ordinance (Cap 132) and the Public Cleansing and Prevention of Nuisances (Regional Council) By-laws		Y		N/A	Ongoing
14.7.2	8.3.1	Storage of material on site should be kept to a minimum.	All areas / throughout construction period	Contractor	TMEIA, Public Cleansing and Prevention of Nuisances (Regional Council) By-laws		Y		N/A	Ongoing

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location / Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Schedule			Maintenance Agency	Implementation Status
						D	C	O		
14.7.2	8.3.1	Excavated material in trucks shall be covered by tarpaulins.	All areas, particularly at site exits / throughout construction period	Contractor	TMEIA, Reduce the potential for spillage and dust. Public Health and Municipal Services Ordinance (Cap 132) and the Public Cleansing and Prevention of Nuisances (Regional Council) By-laws		Y		N/A	Ongoing
14.7.2	8.3.1	Wheel washing facilities shall be used by all trucks leaving the site to prevent the transfer of mud onto public roads.	Site entrances and exits/ throughout construction period	Contractor	TMEIA, Public Cleansing and Prevention of Nuisances (Regional Council) By-laws		Y		N/A	Ongoing
14.7.2	8.3.1	Suitable chemical waste storage areas should be formed at the works site for temporary storage pending collection.	Works site/ throughout construction period	Contractor	TMEIA, Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. A Guide to the Chemical Waste Control Scheme		Y		N/A	Ongoing

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location / Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Schedule			Maintenance Agency	Implementation Status
						D	C	O		
14.7.2	8.3.1	A licensed contractor shall be employed to collect chemical waste for delivery to a licensed treatment facility.	Chemical waste treatment facility at Tsing Yi / throughout construction period	Contractor	TMEIA, Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. A Guide to the Chemical Waste Control Scheme		Y		N/A	Ongoing
14.7.2	8.3.1	Temporary storage areas for general refuse should be enclosed to avoid environmental impacts.	All areas/ throughout construction period	Contractor	TMEIA, Public Health and Municipal Services Ordinance		Y		N/A	Ongoing
14.7.2	8.3.1	Sufficient dustbins should be provided for storage of waste.	All areas/ throughout construction period	Contractor	TMEIA, Public Cleansing and Prevention of Nuisances Ordinance (Regional Council) By-laws, Public Health and Municipal Services Ordinance		Y		N/A	Ongoing
14.7.2	8.3.1	General refuse should be cleared daily and should be disposed of to the nearest licensed facility.	All areas, WENT landfill or NWNT refuse transfer stations/ throughout construction period	Contractor	TMEIA, Sanitation and Conservancy (Regional Council) By-laws		Y		N/A	Ongoing

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location / Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Schedule			Maintenance Agency	Implementation Status
						D	C	O		
14.7.2	8.3.1	Waste oils, chemicals or solvents shall not be disposed of to drain.	PAFF site/ throughout construction period	Contractor	TMEIA		Y		N/A	Ongoing
14.7.2	8.3.1	Good site practice shall be implemented to avoid waste generation and promote waste minimisation.	PAFF site/ throughout construction period	Contractor	TMEIA		Y			Ongoing
14.7.2	8.3.1	Waste materials such as paper, metal, timber and waste oil shall be recycled as far as practicable.	PAFF site/ throughout construction period	Contractor	TMEIA		Y		N/A	Ongoing
14.7.2	8.3.1	Temporary structures used during construction shall be provided in the form of proprietary Protakabin type units sited on areas of permanent hard paving units as far as practicable.	PAFF site/ throughout construction period	Contractor	TMEIA		Y		N/A	Ongoing
14.7.2	8.3.1	Dredged marine mud shall be disposed of in a gazetted marine disposal ground under the requirements of the Dumping at Sea Ordinance.	PAFF site/ throughout construction period				Y		N/A	Ongoing
14.7.2	8.3.1	All waste containers shall be in good condition and fitted with lids or covers to prevent waste from escaping or the ingress of water.	PAFF site/ throughout construction period	Contractor	TMEIA		Y		N/A	Ongoing
14.7.2	8.3.1	All waste containers shall be in a secure area on hardstanding.	PAFF site/ throughout construction period	Contractor	TMEIA		Y		N/A	Ongoing
14.7.2	8.3.1	Emergency equipment to deal with any spillage or fire shall be kept on site.	PAFF site/ throughout construction period		TMEIA		Y		N/A	Ongoing

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location / Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Schedule			Maintenance Agency	Implementation Status
						D	C	O		
14.7.2	8.3.1	All containers used for storage of chemical waste shall be maintained in good condition and clearly labelled in both English and Chinese.	PAFF site/ throughout construction period	Contractor	TMEIA		Y		N/A	Ongoing
14.7.2	8.3.1	All storage areas for chemical waste shall be: <ul style="list-style-type: none"> Clearly labelled; Enclosed on at least 3 sides; Have impermeable floor and bunding sufficient to fully retain any spillage or leakages; Ventilated; and, Covered to prevent rainfall from entering. 	PAFF site/ throughout construction period	Contractor	TMEIA		Y		N/A	Ongoing
14.7.2	8.3.1	All types of asbestos including sources (such as clutch linings) shall be treated as chemical waste. Asbestos containing wastes shall be kept separate from other wastes.	PAFF site/ throughout construction period	Contractor	TMEIA		Y		N/A	Ongoing
14.7.2	8.3.1	All leaking containers shall be contained and removed from site as soon as is reasonably practicable.	PAFF site/ throughout construction period	Contractor	TMEIA		Y		N/A	Ongoing
14.7.2	8.3.1	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling.	PAFF site/ throughout construction period	Contractor	TMEIA		Y		N/A	Ongoing

EIA Reference	EM&A Manual Reference	Environmental Protection Measures	Location / Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Schedule			Maintenance Agency	Implementation Status
						D	C	O		
14.7.2 Section 5	8.3.1	EM&A of waste handling, storage, transportation, disposal procedures and documentation through the site audit programme shall be undertaken.	All areas/ throughout construction period	Contractor	TMEIA		Y		N/A	Ongoing

Annex E

Monitoring Results and
QA/QC Reports of
Laboratory Testing for
POPs



CERTIFICATE OF ANALYSIS

CONTACT:	MS KAREN LUI	Batch:	HK0804569
CLIENT:	ERM HONG KONG	LABORATORY:	HONG KONG
ADDRESS:	21/F., LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, HONG KONG	DATE RECEIVED:	24/03/2008
PROJECT:	EM&A FOR THE PERMANENT AVIATION FUEL FACILITY	DATE OF ISSUE:	15/04/2008
		SAMPLE TYPE:	WATER
		No. of SAMPLES:	18

COMMENTS

Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.
PAHs was subcontracted and tested by ALS Sydney.
ALS Sydney details report was attached. The attached report contains a total of 14 pages.

ISSUING LABORATORY: HONG KONG

Address

ALS Technichem (HK) Pty Ltd
11/F Chung Shun Knitting Centre
1-3 Wing Yip Street
Kwai Chung
HONG KONG

Phone: 852-2610 1044
Fax: 852-2610 2021
Email: hongkong@alsenviro.com


Ms Wong Wai Man, Alice
Laboratory Manager - Hong Kong

Other ALS Environmental Laboratories

AUSTRALIA

Brisbane
Melbourne
Sydney
Newcastle

Hong Kong
Singapore
Kuala Lumpur
Bogor

AMERICAS

Vancouver
Santiago
Atofagasta
Lima

This report may not be reproduced except with prior written approval from ALS Technichem (HK) Pty Ltd.

Abbreviations: % SPK REC denotes percentage spike recovery
CHK denotes duplicate check sample
LOR denotes limit of reporting
LCS % REC denotes Laboratory Control Sample percentage recovery



CERTIFICATE OF ANALYSIS

Batch: HK0804569
Date of Issue: 15/04/2008
Client: ERM HONG KONG
Client Reference: EM&A FOR THE PERMANENT AVIATION FUEL FACILITY

ALS Sydney report is attached for the analysis of PAHs in water.
This attached report contains a total of 14 pages.

Sample Details

<i>ALS Lab ID</i>	<i>ALS Sydney Lab ID</i>	<i>Client's Sample ID</i>	<i>Sampling Date</i>
HK0804569-1	ES0804514-1	MPB1 ME	24/03/2008
HK0804569-2	ES0804514-2	MPB1 ME DUP	24/03/2008
HK0804569-3	ES0804514-3	MPB2 ME	24/03/2008
HK0804569-4	ES0804514-4	MPB2 ME DUP	24/03/2008
HK0804569-5	ES0804514-5	MP ME	24/03/2008
HK0804569-6	ES0804514-6	MP ME DUP	24/03/2008
HK0804569-7	ES0804514-7	C2(NM5) ME	24/03/2008
HK0804569-8	ES0804514-8	C2(NM5) ME DUP	24/03/2008
HK0804569-9	ES0804514-9	MPB1 MF	24/03/2008
HK0804569-10	ES0804514-10	MPB1 MF DUP	24/03/2008
HK0804569-11	ES0804514-11	MPB2 MF	24/03/2008
HK0804569-12	ES0804514-12	MPB2 MF DUP	24/03/2008
HK0804569-13	ES0804514-13	MP MF	24/03/2008
HK0804569-14	ES0804514-14	MP MF DUP	24/03/2008
HK0804569-15	ES0804514-15	C1(NM3) MF	24/03/2008
HK0804569-16	ES0804514-16	C1(NM3) MF DUP	24/03/2008
HK0804569-17	ES0804514-17	C3(NM6) MF	24/03/2008
HK0804569-18	ES0804514-18	C3(NM6) MF DUP	24/03/2008



Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: ES0804514	Page	: 1 of 8
Client	: ALS TECHNICHEM (HK)	Laboratory	: Environmental Division Sydney
Contact	: MS KERRY YUEN	Contact	: Ashwini Sharma
Address	: 11/F CHUNG SHUN KNITTING CNTR 1-3 WING YIP STREET KWAI CHUNG, N.T HONG KONG HONG KONG	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: kerry.yuen@alsenviro.com	E-mail	: Ashwini.Sharma@alsenviro.com
Telephone	: +852 001585226101044	Telephone	: +61-2-8784 8555
Facsimile	: +852 26102021	Facsimile	: +61-2-8784 8500
Project	: ----	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 03-APR-2008
C-O-C number	: ----	Issue Date	: 14-APR-2008
Sampler	: ----	No. of samples received	: 18
Site	: ----	No. of samples analysed	: 18
Quote number	: SY/241/07		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



WORLD RECOGNISED
ACCREDITATION

NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
PHALAK INTHAKESONE	Organics Co-ordinator	Organics

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Work Order : ES0804514
Client : ALS TECHNICHEM (HK)
Project : ----



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

Key : CAS Number = Chemistry Abstract Services number
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

Page : 4 of 8
 Work Order : ES0804514
 Client : ALS TECHNICHEM (HK)
 Project : ----



Analytical Results

Sub-Matrix: WATER

Compound	CAS Number	LOR	Unit	Client sample ID	Client sample ID	Client sample ID	Client sample ID	Client sample ID
				HK0804569-1	HK0804569-2	HK0804569-3	HK0804569-4	HK0804569-5
				24-MAR-2008 15:00	24-MAR-2008 15:00	24-MAR-2008 15:00	24-MAR-2008 15:00	24-MAR-2008 15:00
				ES0804514-001	ES0804514-002	ES0804514-003	ES0804514-004	ES0804514-005
EP132B: Polynuclear Aromatic Hydrocarbons								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
7,12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	83-32-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perylene	198-55-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
EP132T: Base/Neutral Extractable Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	86.8	96.4	89.6	80.8	87.7
Anthracene-d10	1719-06-8	0.1	%	90.9	96.4	94.2	83.3	86.0
4-Terphenyl-d14	1718-51-0	0.1	%	93.0	98.9	96.3	85.2	88.5

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 Work Order : ES0804514
 Client : ALS TECHNICHEM (HK)
 Project : ----



Analytical Results

Sub-Matrix: WATER

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	HK0804569-6	HK0804569-7	HK0804569-8	HK0804569-9	HK0804569-10
				24-MAR-2008 15:00	24-MAR-2008 15:00	24-MAR-2008 15:00	24-MAR-2008 15:00	24-MAR-2008 15:00
				ES0804514-006	ES0804514-007	ES0804514-008	ES0804514-009	ES0804514-010
EP132B: Polynuclear Aromatic Hydrocarbons								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
7,12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	83-32-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perylene	198-55-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
EP132T: Base/Neutral Extractable Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	98.5	89.5	89.6	88.6	99.0
Anthracene-d10	1719-06-8	0.1	%	94.0	89.9	96.7	88.1	93.6
4-Terphenyl-d14	1718-51-0	0.1	%	96.7	91.5	96.6	90.4	93.9

Page : 6 of 8
 Work Order : ES0804514
 Client : ALS TECHNICHEM (HK)
 Project : ----



Analytical Results

Sub-Matrix: WATER

Client sample ID

Client sampling date / time

Compound	CAS Number	LOR	Unit	HK0804569-11	HK0804569-12	HK0804569-13	HK0804569-14	HK0804569-15
				24-MAR-2008 15:00	24-MAR-2008 15:00	24-MAR-2008 15:00	24-MAR-2008 15:00	24-MAR-2008 15:00
				ES0804514-011	ES0804514-012	ES0804514-013	ES0804514-014	ES0804514-015
EP132B: Polynuclear Aromatic Hydrocarbons								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
7,12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	83-32-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perylene	198-55-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	0.2
EP132T: Base/Neutral Extractable Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	91.8	85.5	78.7	101	101
Anthracene-d10	1719-06-8	0.1	%	94.1	85.6	80.2	98.0	95.3
4-Terphenyl-d14	1718-51-0	0.1	%	95.1	85.9	80.2	98.8	96.0

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 Work Order : ES0804514
 Client : ALS TECHNICHEM (HK)
 Project : ----



Analytical Results

Sub-Matrix: WATER

Compound	CAS Number	LOR	Unit	Client sample ID	Client sample ID	Client sample ID	---	---
				Client sampling date / time	Client sampling date / time	Client sampling date / time		
				HK0804569-16	HK0804569-17	HK0804569-18		
				24-MAR-2008 15:00	24-MAR-2008 15:00	24-MAR-2008 15:00	---	---
				ES0804514-016	ES0804514-017	ES0804514-018	---	---
EP132B: Polynuclear Aromatic Hydrocarbons								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	<0.1	<0.1	---	---
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	<0.1	<0.1	---	---
7,12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	<0.1	<0.1	---	---
Acenaphthene	83-32-9	0.1	µg/L	<0.1	<0.1	<0.1	---	---
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	<0.1	<0.1	---	---
Anthracene	120-12-7	0.1	µg/L	<0.1	<0.1	<0.1	---	---
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	<0.1	<0.1	---	---
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	<0.05	<0.05	---	---
Benzo(b)fluoranthene	205-99-2	0.1	µg/L	<0.1	<0.1	<0.1	---	---
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	<0.1	<0.1	---	---
Benzo(g,h,i)perylene	191-24-2	0.1	µg/L	<0.1	<0.1	<0.1	---	---
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	<0.1	<0.1	---	---
Chrysene	218-01-9	0.1	µg/L	<0.1	<0.1	<0.1	---	---
Coronene	191-07-1	0.1	µg/L	<0.1	<0.1	<0.1	---	---
Dibenz(a,h)anthracene	53-70-3	0.1	µg/L	<0.1	<0.1	<0.1	---	---
Fluoranthene	206-44-0	0.1	µg/L	<0.1	<0.1	<0.1	---	---
Fluorene	86-73-7	0.1	µg/L	<0.1	<0.1	<0.1	---	---
Indeno(1,2,3-cd)pyrene	193-39-5	0.1	µg/L	<0.1	<0.1	<0.1	---	---
N-2-Fluorenyl Acetamide	53-96-3	0.1	µg/L	<0.1	<0.1	<0.1	---	---
Naphthalene	91-20-3	0.1	µg/L	<0.1	<0.1	<0.1	---	---
Perylene	198-55-0	0.1	µg/L	<0.1	<0.1	<0.1	---	---
Phenanthrene	85-01-8	0.1	µg/L	<0.1	<0.1	<0.1	---	---
Pyrene	129-00-0	0.1	µg/L	<0.1	<0.1	<0.1	---	---
EP132T: Base/Neutral Extractable Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	92.6	106	98.5	---	---
Anthracene-d10	1719-06-8	0.1	%	93.1	99.1	99.3	---	---
4-Terphenyl-d14	1718-51-0	0.1	%	88.3	98.2	99.3	---	---



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP132T: Base/Neutral Extractable Surrogates			
2-Fluorobiphenyl	321-60-8	43	116
Anthracene-d10	1719-06-8	27	133
4-Terphenyl-d14	1718-51-0	33	141



Environmental Division

QUALITY CONTROL REPORT

Work Order	: ES0804514	Page	: 1 of 6
Client	: ALS TECHNICHEM (HK)	Laboratory	: Environmental Division Sydney
Contact	: MS KERRY YUEN	Contact	: Ashwini Sharma
Address	: 11/F CHUNG SHUN KNITTING CNTR 1-3 WING YIP STREET KWAI CHUNG, N.T HONG KONG HONG KONG	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: kerry.yuen@alsenviro.com	E-mail	: Ashwini.Sharma@alsenviro.com
Telephone	: +852 001585226101044	Telephone	: +61-2-8784 8555
Facsimile	: +852 26102021	Facsimile	: +61-2-8784 8500
Project	: ----	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ----	Date Samples Received	: 03-APR-2008
C-O-C number	: ----	Issue Date	: 14-APR-2008
Sampler	: ----	No. of samples received	: 18
Order number	: ----	No. of samples analysed	: 18
Quote number	: SY/241/07		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
PHALAK INTHAKESONE	Organics Co-ordinator	Organics

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Work Order : ES0804514
Client : ALS TECHNICHEM (HK)
Project : ----



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = Chemistry Abstract Services number
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC

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Work Order : ES0804514
Client : ALS TECHNICHEM (HK)
Project : ----



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR:- No Limit; Result between 10 and 20 times LOR:- 0% - 50%; Result > 20 times LOR:- 0% - 20%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB)	Laboratory Control Spike (LCS) Report				
				Report	Spike	Spike Recovery (%)		Recovery Limits (%)	
				Result	Concentration	LCS	Low	High	
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 627083)									
EP132: 3-Methylcholanthrene	56-49-5	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 103	---- 65.8	---- 121	
EP132: 2-Methylnaphthalene	91-57-6	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 82.2	---- 67.7	---- 112	
EP132: 7.12-Dimethylbenz(a)anthracene	57-97-6	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 97.3	---- 11.6	---- 146	
EP132: Acenaphthene	83-32-9	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 89.5	---- 73.2	---- 111	
EP132: Acenaphthylene	208-96-8	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 93.0	---- 72.4	---- 112	
EP132: Anthracene	120-12-7	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 96.6	---- 73.4	---- 113	
EP132: Benz(a)anthracene	56-55-3	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 104	---- 73.6	---- 114	
EP132: Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	2 µg/L	104	75.2	117	
EP132: Benzo(b)fluoranthene	205-99-2	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 113	---- 71.4	---- 119	
EP132: Benzo(e)pyrene	192-97-2	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 101	---- 75.3	---- 118	
EP132: Benzo(g,h,i)perylene	191-24-2	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 103	---- 66.6	---- 121	
EP132: Benzo(k)fluoranthene	207-08-9	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 90.0	---- 74.8	---- 118	
EP132: Chrysene	218-01-9	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 102	---- 69.6	---- 120	
EP132: Coronene	191-07-1	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 105	---- 47.4	---- 131	
EP132: Dibenz(a,h)anthracene	53-70-3	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 104	---- 71.5	---- 117	
EP132: Fluoranthene	206-44-0	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 97.8	---- 74.8	---- 117	
EP132: Fluorene	86-73-7	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 94.2	---- 72.9	---- 114	
EP132: Indeno(1.2.3.cd)pyrene	193-39-5	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 103	---- 67.8	---- 119	
EP132: N-2-Fluorenyl Acetamide	53-96-3	0.1 0.10	µg/L µg/L	<0.1 ----	---- 20 µg/L	---- 87.5	---- 53.6	---- 131	
EP132: Naphthalene	91-20-3	0.1 0.10	µg/L µg/L	<0.1 ----	---- 2 µg/L	---- 91.0	---- 68.3	---- 116	

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 Client : ALS TECHNICHEM (HK)
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Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method: Compound	CAS Number	LOR	Unit		Result	Spike	Spike Recovery (%)	Recovery Limits (%)
				Concentration		LCS	Low	High
EP132B: Polynuclear Aromatic Hydrocarbons (QCLot: 627083) - continued								
EP132: Perylene	198-55-0	0.1	µg/L	<0.1	----	----	----	----
		0.10	µg/L	----	2 µg/L	104	68	122
EP132: Phenanthrene	85-01-8	0.1	µg/L	<0.1	----	----	----	----
		0.10	µg/L	----	2 µg/L	96.6	74.8	112
EP132: Pyrene	129-00-0	0.1	µg/L	<0.1	----	----	----	----
		0.10	µg/L	----	2 µg/L	91.1	75.1	117

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Work Order : ES0804514
Client : ALS TECHNICHEM (HK)
Project : ----



Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

- **No Matrix Spike (MS) Results are required to be reported.**



CERTIFICATE OF ANALYSIS

<i>Client</i>	: ERM HONG KONG	<i>Laboratory</i>	: ALS Technichem (HK) Pty Ltd	<i>Page</i>	: 1 of 7
<i>Contact</i>	: MS KAREN LUI	<i>Contact</i>	: Alice Wong	<i>Work Order</i>	: HK0804569
<i>Address</i>	: 21/F, LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG	<i>Address</i>	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
<i>E-mail</i>	: Karen.Lui@erm.com	<i>E-mail</i>	: Alice.Wong@alsenviro.com		
<i>Telephone</i>	: 2271 3000	<i>Telephone</i>	: +852 2610 1044		
<i>Facsimile</i>	: 2723 5660	<i>Facsimile</i>	: +852 2610 2021		
<i>Project</i>	: EM&A FOR THE PERMANENT AVIATION FUEL FACILITY	<i>Quote number</i>	: ---	<i>Date received</i>	: 24 Mar 2008
<i>Order number</i>	: ---			<i>Date of issue</i>	: 15 Apr 2008
<i>C-O-C number</i>	: ---			<i>No. of samples</i>	- Received : 18
<i>Site</i>	: ---				- Analysed : 18

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0804569 supersedes any previous reports with this reference. The completion date of analysis is 2 Apr 2008. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK0804569 : **Sample(s) were picked up from client by ALS Technichem (HK) staff in a chilled condition.
Water sample(s) analysed and reported on an as received basis.**

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This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the 'Electronic Transactions Ordinance' of Hona Kona. Chapter 553. Section 6.

<u>Signatory</u>	<u>Position</u>	<u>Authorised results for:-</u>
Anh Ngoc Huynh	Senior Chemist	Organics



Analytical Results

				Client Sample ID :	MPB1 ME	MPB1 ME DUP	MPB2 ME	MPB2 ME DUP	MP ME
				Laboratory Sample ID :	HK0804569-001	HK0804569-002	HK0804569-003	HK0804569-004	HK0804569-005
				Sample Date / Time :	[24 Mar 2008]	[24 Mar 2008]	[24 Mar 2008]	[24 Mar 2008]	[24 Mar 2008]
Submatrix: MARINE WATER									
Method: Analysis Description	CAS number	LOR	Units						
EP-065A: PCB Single Congeners									
PCB 8	34883-43-7	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 18	37680-65-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 28	7012-37-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 52	35693-99-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 44	41464-39-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 66	32598-10-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 101	37680-73-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 77	32598-13-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 149	38380-04-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 118	31508-00-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 153	35065-27-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 105	32598-14-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 126	57465-28-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 187	52663-68-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 128	38380-07-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 156	38380-08-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 180	35065-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 169	60044-26-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 170	35065-30-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 195	52663-78-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EP-065B: Organochlorine Pesticides									
4.4'-DDT	50-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
4.4'-DDE	72-55-9	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
4.4'-DDD	72-54-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate								Surrogate control limits listed at end of this report.	
Decachlorobiphenyl	2051-24-3	0.1	%	93.7	94.4	102	105	102	
Tetrachlorometaxylene	877-09-8	0.1	%	101	97.8	86.4	82.7	112	
Dibutylchlorendate	1770-80-5	0.1	%	113	105	105	84.6	120	



Analytical Results

				Client Sample ID :	MP ME DUP	C2 (NM5) ME	C2 (NM5) ME DUP	MPB1 MF	MPB1 MF DUP
				Laboratory Sample ID :	HK0804569-006	HK0804569-007	HK0804569-008	HK0804569-009	HK0804569-010
				Sample Date / Time :	[24 Mar 2008]	[24 Mar 2008]	[24 Mar 2008]	[24 Mar 2008]	[24 Mar 2008]
Submatrix: MARINE WATER									
Method: Analysis Description	CAS number	LOR	Units						
EP-065A: PCB Single Congeners									
PCB 8	34883-43-7	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 18	37680-65-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 28	7012-37-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 52	35693-99-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 44	41464-39-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 66	32598-10-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 101	37680-73-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 77	32598-13-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 149	38380-04-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 118	31508-00-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 153	35065-27-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 105	32598-14-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 126	57465-28-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 187	52663-68-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 128	38380-07-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 156	38380-08-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 180	35065-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 169	60044-26-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 170	35065-30-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 195	52663-78-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EP-065B: Organochlorine Pesticides									
4.4'-DDT	50-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
4.4'-DDE	72-55-9	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
4.4'-DDD	72-54-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate								Surrogate control limits listed at end of this report.	
Decachlorobiphenyl	2051-24-3	0.1	%	116	106	101	94.2	94.6	
Tetrachlorometaxylene	877-09-8	0.1	%	108	97.0	120	118	99.7	
Dibutylchloroendate	1770-80-5	0.1	%	104	107	85.4	102	82.0	



Analytical Results

Client Sample ID :	MPB2 MF	MPB2 MF DUP	MP MF	MP MF DUP	C1 (NM3) MF
Laboratory Sample ID :	HK0804569-011	HK0804569-012	HK0804569-013	HK0804569-014	HK0804569-015
Sample Date / Time :	[24 Mar 2008]	[24 Mar 2008]	[24 Mar 2008]	[24 Mar 2008]	[24 Mar 2008]
Submatrix: MARINE WATER					
Method: Analysis Description	CAS number	LOR	Units		

EP-065A: PCB Single Congeners								
PCB 8	34883-43-7	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 18	37680-65-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 28	7012-37-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 52	35693-99-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 44	41464-39-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 66	32598-10-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 101	37680-73-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 77	32598-13-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 149	38380-04-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 118	31508-00-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 153	35065-27-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 105	32598-14-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 126	57465-28-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 187	52663-68-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 128	38380-07-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 156	38380-08-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 180	35065-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 169	60044-26-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 170	35065-30-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
PCB 195	52663-78-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EP-065B: Organochlorine Pesticides								
4.4'-DDT	50-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
4.4'-DDE	72-55-9	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
4.4'-DDD	72-54-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate								
								Surrogate control limits listed at end of this report.
Decachlorobiphenyl	2051-24-3	0.1	%	112	98.9	105	98.5	114
Tetrachlorometaxylene	877-09-8	0.1	%	88.7	106	116	92.7	116
Dibutylchloroendate	1770-80-5	0.1	%	80.6	106	91.2	94.3	91.3



Analytical Results

				Client Sample ID :	C1 (NM3) MF DUP	C3 (NM6) MF	C3 (NM6) MF DUP		
				Laboratory Sample ID :	HK0804569-016	HK0804569-017	HK0804569-018		
				Sample Date / Time :	[24 Mar 2008]	[24 Mar 2008]	[24 Mar 2008]		
Method: Analysis Description	CAS number	LOR	Units						
EP-065A: PCB Single Congeners									
PCB 8	34883-43-7	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 18	37680-65-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 28	7012-37-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 52	35693-99-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 44	41464-39-5	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 66	32598-10-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 101	37680-73-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 77	32598-13-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 149	38380-04-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 118	31508-00-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 153	35065-27-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 105	32598-14-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 126	57465-28-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 187	52663-68-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 128	38380-07-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 156	38380-08-4	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 180	35065-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 169	60044-26-0	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 170	35065-30-6	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
PCB 195	52663-78-2	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
EP-065B: Organochlorine Pesticides									
4.4'-DDT	50-29-3	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
4.4'-DDE	72-55-9	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
4.4'-DDD	72-54-8	0.01	µg/L	<0.01	<0.01	<0.01	<0.01		
EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate									
Surrogate control limits listed at end of this report.									
Decachlorobiphenyl	2051-24-3	0.1	%	107	85.1	92.9			
Tetrachlorometaxylene	877-09-8	0.1	%	85.8	88.0	105			
Dibutylchlorendate	1770-80-5	0.1	%	115	89.5	122			



Quality Control - Laboratory Duplicate (DUP) Results

Matrix Type: WATER				Duplicate (DUP) Results				
Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	LOR	Units	Original Result	Duplicate Result	RPD (%)
EP-065A: PCB Single Congeners (QC Lot: 624447)								
HK0804569-001	MPB1 ME	PCB 8	34883-43-7	0.01	µg/L	<0.01	<0.01	0.0
		PCB 18	37680-65-2	0.01	µg/L	<0.01	<0.01	0.0
		PCB 28	7012-37-5	0.01	µg/L	<0.01	<0.01	0.0
		PCB 52	35693-99-3	0.01	µg/L	<0.01	<0.01	0.0
		PCB 44	41464-39-5	0.01	µg/L	<0.01	<0.01	0.0
		PCB 66	32598-10-0	0.01	µg/L	<0.01	<0.01	0.0
		PCB 101	37680-73-2	0.01	µg/L	<0.01	<0.01	0.0
		PCB 77	32598-13-3	0.01	µg/L	<0.01	<0.01	0.0
		PCB 149	38380-04-0	0.01	µg/L	<0.01	<0.01	0.0
		PCB 118	31508-00-6	0.01	µg/L	<0.01	<0.01	0.0
		PCB 153	35065-27-1	0.01	µg/L	<0.01	<0.01	0.0
		PCB 105	32598-14-4	0.01	µg/L	<0.01	<0.01	0.0
		PCB 126	57465-28-8	0.01	µg/L	<0.01	<0.01	0.0
		PCB 187	52663-68-0	0.01	µg/L	<0.01	<0.01	0.0
		PCB 128	38380-07-3	0.01	µg/L	<0.01	<0.01	0.0
		PCB 156	38380-08-4	0.01	µg/L	<0.01	<0.01	0.0
		PCB 180	35065-29-3	0.01	µg/L	<0.01	<0.01	0.0
		PCB 169	60044-26-0	0.01	µg/L	<0.01	<0.01	0.0
		PCB 170	35065-30-6	0.01	µg/L	<0.01	<0.01	0.0
		PCB 195	52663-78-2	0.01	µg/L	<0.01	<0.01	0.0
EP-065B: Organochlorine Pesticides (QC Lot: 624447)								
HK0804569-001	MPB1 ME	4,4'-DDT	50-29-3	0.01	µg/L	<0.01	<0.01	0.0
		4,4'-DDE	72-55-9	0.01	µg/L	<0.01	<0.01	0.0
		4,4'-DDD	72-54-8	0.01	µg/L	<0.01	<0.01	0.0

Quality Control - Method Blank (MB), Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results

Matrix Type: WATER		Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results						
Method: Analysis Description	CAS number	LOR	Units	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						SCS	DCS	Low	High	Value	Control Limit
EP-065A: PCB Single Congeners (QCLot: 624447)											
PCB 8	34883-43-7	0.01	µg/L	<0.01	100 µg/L	103	----	50	130	----	----
PCB 18	37680-65-2	0.01	µg/L	<0.01	100 µg/L	90.0	----	50	130	----	----
PCB 28	7012-37-5	0.01	µg/L	<0.01	100 µg/L	82.9	----	50	130	----	----
PCB 52	35693-99-3	0.01	µg/L	<0.01	100 µg/L	99.6	----	50	130	----	----
PCB 44	41464-39-5	0.01	µg/L	<0.01	100 µg/L	88.5	----	50	130	----	----
PCB 66	32598-10-0	0.01	µg/L	<0.01	100 µg/L	103	----	50	130	----	----
PCB 101	37680-73-2	0.01	µg/L	<0.01	100 µg/L	106	----	50	130	----	----



Matrix Type: WATER

Method: Analysis Description		Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results							
		CAS number	LOR	Units	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
							SCS	DCS	Low	High	Value	Control Limit
EP-065A: PCB Single Congeners (QCLot: 624447) - continued												
PCB 77	32598-13-3	0.01	µg/L	<0.01	100 µg/L	92.4	----	50	130	----	----	
PCB 149	38380-04-0	0.01	µg/L	<0.01	100 µg/L	99.3	----	50	130	----	----	
PCB 118	31508-00-6	0.01	µg/L	<0.01	100 µg/L	109	----	50	130	----	----	
PCB 153	35065-27-1	0.01	µg/L	<0.01	100 µg/L	87.7	----	50	130	----	----	
PCB 105	32598-14-4	0.01	µg/L	<0.01	100 µg/L	88.7	----	50	130	----	----	
PCB 126	57465-28-8	0.01	µg/L	<0.01	100 µg/L	93.9	----	50	130	----	----	
PCB 187	52663-68-0	0.01	µg/L	<0.01	100 µg/L	97.4	----	50	130	----	----	
PCB 128	38380-07-3	0.01	µg/L	<0.01	100 µg/L	78.0	----	50	130	----	----	
PCB 156	38380-08-4	0.01	µg/L	<0.01	100 µg/L	95.9	----	50	130	----	----	
PCB 180	35065-29-3	0.01	µg/L	<0.01	100 µg/L	85.8	----	50	130	----	----	
PCB 169	60044-26-0	0.01	µg/L	<0.01	100 µg/L	88.4	----	50	130	----	----	
PCB 170	35065-30-6	0.01	µg/L	<0.01	100 µg/L	91.9	----	50	130	----	----	
PCB 195	52663-78-2	0.01	µg/L	<0.01	100 µg/L	103	----	50	130	----	----	
EP-065B: Organochlorine Pesticides (QCLot: 624447)												
4,4'-DDT	50-29-3	0.01	µg/L	<0.01	100 µg/L	Not Determined	----	50	130	----	----	
4,4'-DDE	72-55-9	0.01	µg/L	<0.01	100 µg/L	Not Determined	----	50	130	----	----	
4,4'-DDD	72-54-8	0.01	µg/L	<0.01	100 µg/L	Not Determined	----	50	130	----	----	

Surrogate Control Limits

Submatrix Type: MARINE WATER

Method: Analysis Description	Units	Lower Limit	Upper Limit
EP-065S: PCB Congeners and Organochlorine Pesticides Surrogate			
Decachlorobiphenyl	%	50	130
Tetrachlorometaxylene	%	50	130
Dibutylchloredate	%	50	130

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**21/F Lincoln House
Taikoo Place, 979 King's Road
Island East, Hong Kong
T: 2271 3000
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